ND-1002136 TDRR 03062

FOR THE PROCUREMENT AND ASSEMBLY

3			Approvals		als	
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This conciliention consists of pager 1 to 111 and 1 to 19 inclusive

The purpose of this document is to establish the requirements for the procurement and assembly of wrapost contacts and insulators for use in Apollo Guidance and Nevigation Equipment.

1.1 Score. This specification overs provided and small results ments for wraphet contacts and insulators, and their security states of contacts, their respective insulators, and their security states. The wraphet contacts and insulators small be berningfor referred to an connectors or connector assemblies.

1.2 CLASSIFICATION. Connector assemblies shall have bee configurations:

hereinafter referred to as Type A.

b. Those which are lined up on a 0.125 inch grid configuration, hereinafter referred to as Type B.

2.1 The following documents of the issue in effect on the data of instantion for bids shall form a part of this specification to the extent specification

Magnesium Alloy 00-M-31 QQ-A-561

Anodic Coating for Magnesium and Magnesium Alloys

Anodic Coating for Aluminum and

Aluminum Alloys

and Associated Repair Parts, Preparation

denoral Specification Configuration, Freedom and Quality Control Requirements for Specific of High Reliability Articles for The In Specific craft and Supporting Equipment

Apollo G & F Specification T-1002135 Sec. 115 Claim A Release TOTAL 0305-

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Apollo G & N Specification ND-1002136

12 Sept. 1963

SPECIFICATION FOR THE

OF

ELECTRICAL WRAPOST CONTACTS AND INSULATORS

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1. SCOPE

1.1 SCORE. This medication of the last of the contacts, and insulators constituted by the contacts and insulators will be appeared to connector assemblies.

1.2 CLASSIFICATION. Commercer 10

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b. Those which are lined up on a 0.125 inch grid consister referred to as Type B. These assemblies consisted to as Type B. These assemblies consisted to a to a top the consistence of t

. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on the date of invitation for bids shall form a part of this specification to the extent specified berein.

SPECIFICATIONS

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deneral Specification Configuration, Process and Quality Control Requirements for Suppliers of High Reliability Articles for Use in Spacecraft and Supporting Equipment.

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Epoxy Bonding

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FOR THE

DIRECTOR AND INSULATORS.

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Apollo U & N Specification ND+1002136

SPECIFICATION FOR THE ASSISTED.

OF
ELECTRICAL MRAPOST CONTACTS AND INSULATORS

The purpose of this document is to establish the requirements for the assembly of weapost contacts and invisitors for use in Apollo Oridince and Navigation Equipment.

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a. Frem 127	Reliability	9/5/63
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A. A. Test	more Station	9/5/63

1. SCOPE

1.1 SCOPE. This specification covers assembly requirements for wrapost contacts, and insulators comprised of male and/or female contacts, their respective insulators, and their mounting structures or metal insert plates. The wrapost contacts and insulators shall be becommitter referred to us connectors or connector assemblies,

1.7 CLASSIFICATION. Compector assemblies shall have two configurations:

I APPERIABLE DISCUSSIONES

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Sampling Procedures and Tables for Inspection by Attributes

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NIL-NTD-810 Military Standard Environmental Test Methods for Aerospace and Ground Support

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1006774 Insulator, Wrapout Penale Minister (Decarring Control Drowled)

1006775 Insulator, Wrapast Male Miniatore (See Florida Control Deswinz)

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1996782 Contact Wrupost Nale Hinlature (Specification Control Drawing)

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content, State Same Communiter (Specification Control Drawing)

102.0383 Insulator, Wrapout Rale (Seccification Control Drawing)

- DESCRIPTION Each assembled connector covered by this specification is composed of (1) contacts, (2) nylon inserts, and (3) the mounting structures or metal insert plates. Contacts shall be suitably insulated in the nylon insulator and shall be designed to permit individual insertion and removal from their respective inserts. The male contact dimensions shall be such that it properly mates with the female contact, or equivalent, when arrayed on 0.200 or 0.125 Inch centers as specified on their respective drawings.
- The country of the control of the co
- Connector Assemblies. Commenter standings shall be compared of parts as set forth in paragraph 3.1 or as may be required by contract or order in whole or in part.
- Contact Solding Pesture
- Type A [After full importion less the impolator and mounting structure, the Type A contact wall withstand a minimum pulsest load, pd. 20 portion as distriction when tooked in accordance with paragraph (.7.2.2. The impolator shall be consented to the normaling structure with type I adhesive pur ablocated to meet the 20 pound minimum require
- Type 8 After full insertion into the insulator and mounting structure, the Type a contact shall withstand a minimum pushout load of 7.5 pounds in either direction when tested in accordance with paragraph 4.7.2.2. The insulator shall be cemented to the mounting structure with type I adhesive per ND1002004 to meet the

- 3.1.2 Insertion Force of Mated Assembly
- 3.3.2.1 Insertion Force of Type A The insertion force required to fully engage a male contact and insulator assembly into a female contact and insulator assembly shall not exceed 15 ownces.
- 3.3.2.2 Insertion Force of Type B The insertion force required to fully engage a male contact and insulator assembly into a female contact and insulator assembly shall not exceed 10 cunces.
- 3.3.3 Retention Force of Mated Assembly
- 3.3.3.1 Retention Force of Type A, The retention force of a fully engaged male contact and insulator assembly mated with a female contact and insulator assembly shall be a minimum of 4 ounces.
- 3,3,3,2 Retention Force of Type B. The retention force of a fully engaged are contact and insulator assumbly mated with a female contact and insulator assumbly shall be a minimum of 1 ources.
- 3.4 CONTACT RESISTANCE, MATER
- T.4.1 Correct Overload [Mated Contacts] The contact when mated with a stronger forming is accordance with the set of in Figure 1 shall not deteriorate after correct merical of 125 percent of rated correct for 1 minutes.
- 3.4.2 Dry Circuit Test for Mated Contact, Dry circuit resistance of individual nated contact (Beforenon Figures 1 and 2) shall be determined by two nothods (see test paragraph 4.7.2.5 a and b). The resistance obtained by method b shall not many more than 15 percent (row that obtained in method s.

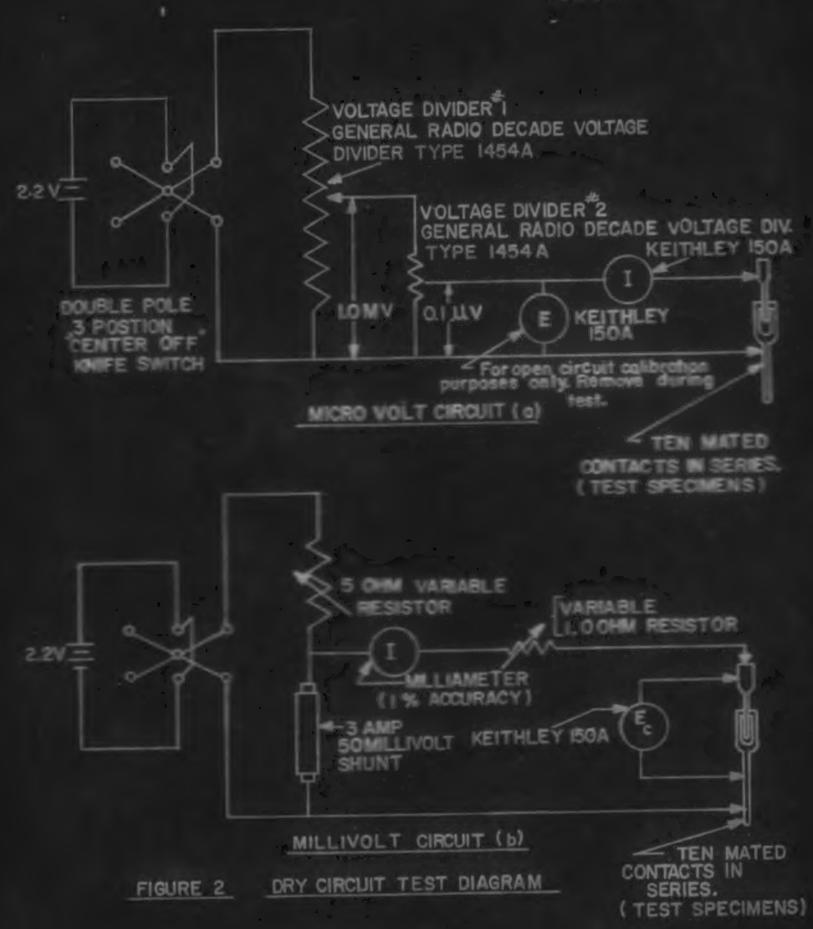




FIGURE 1 TEST SET UP FOR MEASURING MATED CONTACT

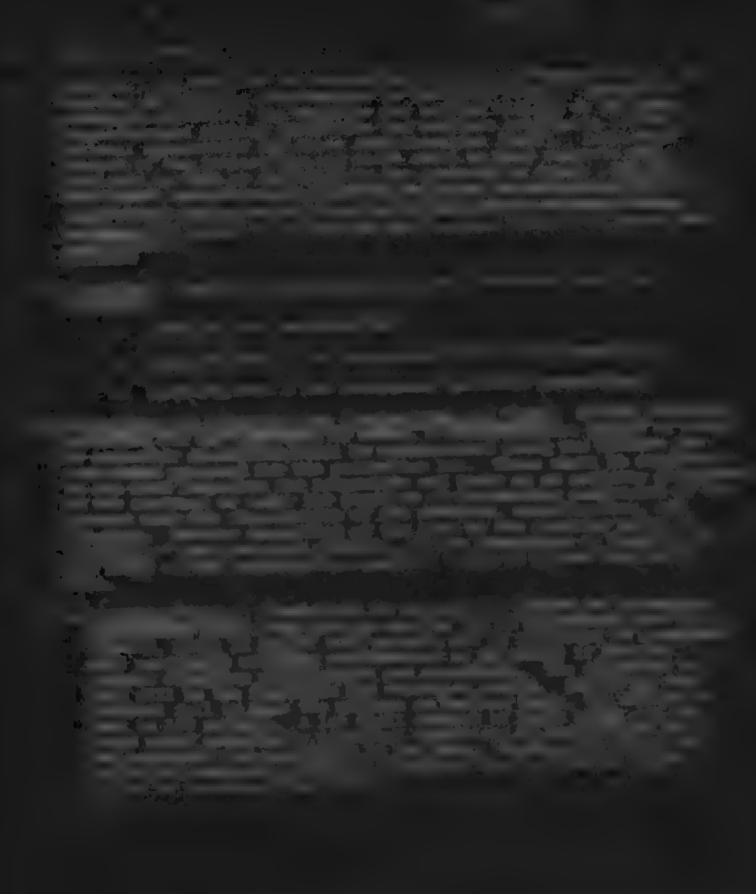


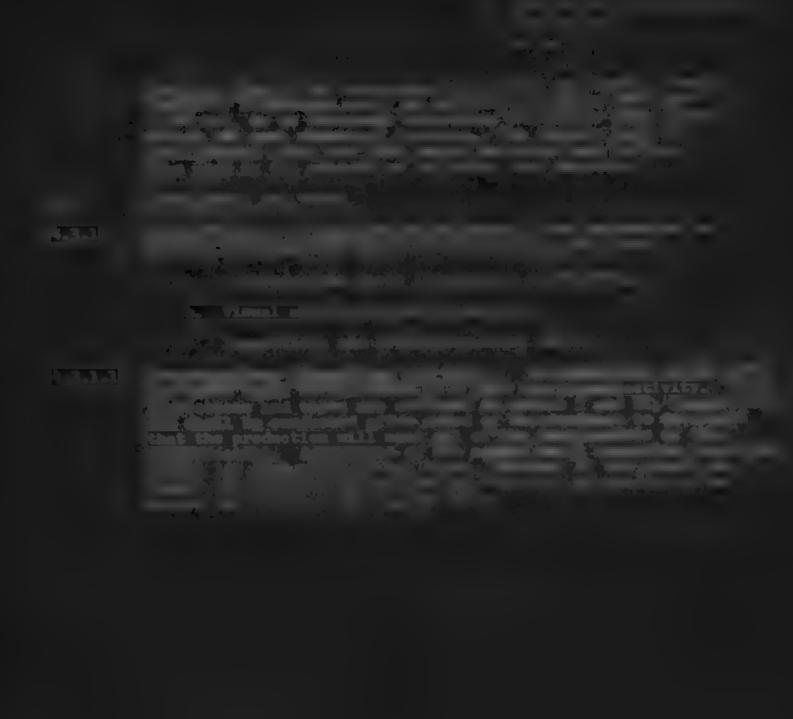
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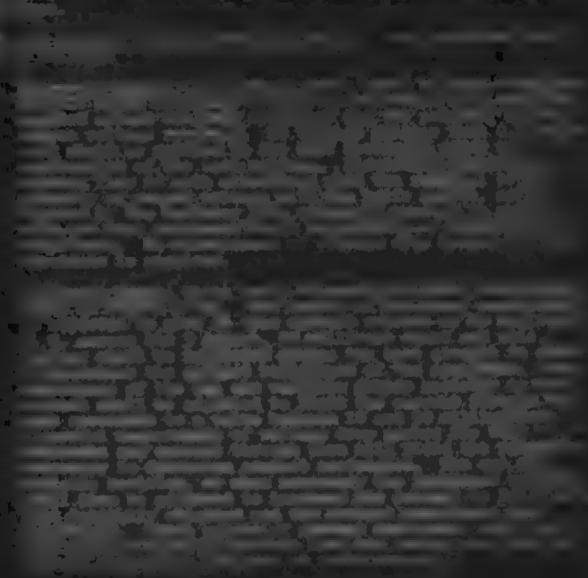
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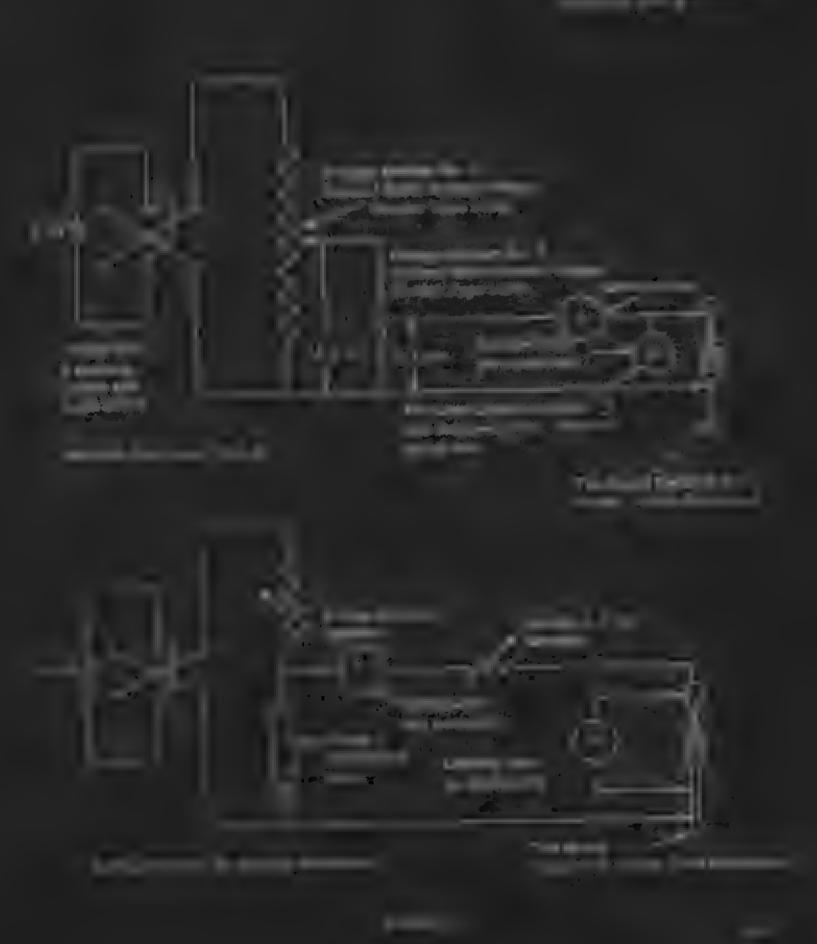


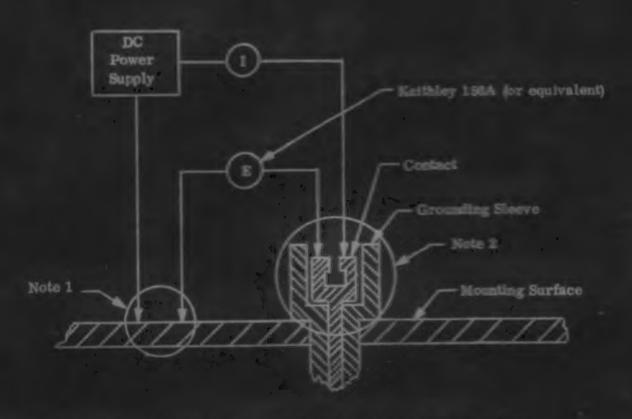
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POF CONTACTS

APOLLO GAN Specification NEDD02136 REV







- Note 1: Connections to be made at separate points on an uncoated surface,
- Note 2: Connection to be made using a two section simulated male pin which provides electrical isolation between the supply and voltmeter leads.

GROUNDING PIN RESISTANCE MEASUREMENT

FIGURE T

APPENDIX I

1. FURFOSE

- 1.1 The purpose of this appendix is to establish a repair procedure for the replacement of connectors damaged beyond functional useability as determined by supplier's Quality Control.
- I. 2 Replacement of insulator-contact assemblies
- 1.2.1 Remove damaged insulator-contact assembly with suitable extraction tool approved by the supplier's Quality Control.
- 1.2.2 Inspect hole for dimensions and damage. The hole must meet the requirements of the spolicable drawing. This shall include touch-up as necessary to the protective coating.
- 1.2.3 Condition the insulator per 3.4.1 or precondition 1010956 insulator by submerging in distilled water for 24 hours, then remove from water and store in 60 percent ±15 percent R.H. chamber for a minimum of 48 hours in open container prior to installation at a temperature of 25°±5°C, and install the insulator-contact assembly with suitable tool approved by the supplier's Quality Control.
- 1.1.4 Inspect replaced connector for dimensional requirements per 3.3.4, for bent contact per 3.4.2, for workmanship per 3.4.4, for contact insertion per 3.3.2 and for contact withdrawal per 3.3.3. For push-out load 5 samples shall be fabricated, for each type of connector assembly repaired, once each month or once every 1,000 pins repaired whichever comes first. The emplier's quality control group is responsible for this action for purposes of equipment recalibration.
- 1.3 Replacement of Ground Sleeve-contact assemblies
- 1.2.1 Remove damaged grounding sleeve-contact assembly using suitable tooling approved by the supplier's Quality Control.
- 1.3.2 Inspect hole for deformation. Deformation shall be defined as damage which would prevent be manufaction of a grounding sleeve-contact assembly from meeting requirements of this specification. Marring or indentations caused by the knurled portion of the original grounding sleeve shall not be cause for rejection.
- 1.3.3 Measure hole to determine size of ground sleeve required for replacement, Ground sleeve replacement must have a minimum interference fit with mounting hole of 0,0005.
- 1.1.4 Install grounding sleeve-contact assembly using suitable tooling approved by the supplier's famility Control.
- 1.3 3 Inspect assembled connector for dimensional requirements per 3.3.4, for bent contact as 3.4.2, for workmanship per 3.4.4, for contact insertion per 3.3.2 and for contact withdrawall 1.3.3.

Apollo 2 & W Specification
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ELECTRICAL WEAPOUT CONTACTS AND INSTLATORS

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pages 1 to 111 and 1 to 21 Indicative, including Appendex L, page 21.

CONNECTOR TYPE	DO TEST CURRENT (Amps)	CONTACT BESSTANCE (Ohns)
A., G. H -B., C. F		0.0025 max 0.0025 max